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PUBLIC SERVICE  
COMMISSION

**COMMONWEALTH OF KENTUCKY**

**BEFORE THE**

**PUBLIC SERVICE COMMISSION OF KENTUCKY**

**IN THE MATTER OF**

**CONSIDERATION OF THE IMPLEMENTATION  
OF SMART GRID AND SMART METER  
TECHNOLOGIES**

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)  
)

**ADMINISTRATIVE  
CASE NO. 2012-00428**

**KENTUCKY POWER COMPANY RESPONSES TO ATTORNEY GENERAL'S  
INITIAL SET OF DATA REQUESTS**

**March 20, 2013**

## VERIFICATION

The undersigned, Lila P. Munsey, being duly sworn, deposes and says she is the Manager, Regulatory Services for Kentucky Power, that she has personal knowledge of the matters set forth in the forgoing responses for which she is the identified witness and that the information contained therein is true and correct to the best of her information, knowledge, and belief

Lila P. Munsey  
Lila P. Munsey

COMMONWEALTH OF KENTUCKY           )  
   ) Case No. 2012-00428  
COUNTY OF FRANKLIN                  )

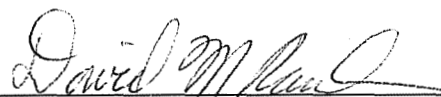
Subscribed and sworn to before me, a Notary Public in and before said County and State, by Lila P. Munsey, this 12<sup>th</sup> day of March 2013.

*Judith K Rosquist* 481392  
Notary Public

My Commission Expires: January 23, 2017

## VERIFICATION

The undersigned, David M. Roush being duly sworn, deposes and says he is the Director Regulated Pricing and Analysis, that he has personal knowledge of the matters set forth in the forgoing responses for which he is the identified witness and that the information contained therein is true and correct to the best of his information, knowledge, and belief



David M. Roush

STATE OF OHIO

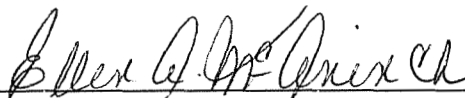
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) Case No. 2012-00428

COUNTY OF FRANKLIN

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Subscribed and sworn to before me, a Notary Public in and before said County and State, by David M. Roush, this the 12<sup>th</sup> day of March 2013.



Notary Public



ELLEN A. MCANINCH  
NOTARY PUBLIC  
STATE OF OHIO  
Recorded in  
Franklin County  
My Comm. Exp. 5/11/16

My Commission Expires

May 11<sup>th</sup>, 2013

**Kentucky Power Company**

**REQUEST**

Since the Commission initiated Consideration of the New Federal Standards of the Energy Independence and Security Act of 2007, Administrative Case No. 2008-00408, has the company changed its position regarding Smart Grid? If so, how?

**RESPONSE**

No, the Company has not changed its position. Please see the direct testimony of Company witness Munsey at page 9.

**WITNESS:** Lila P Munsey

**Kentucky Power Company**

**REQUEST**

Are the technologies pertaining to the implementation of Smart Grid definitely known and proven?

- a. If yes, explain in detail every aspect from the use of each technology from the company to the end-user.
- b. If not, explain in detail what technologies are already advancing/improving as well as those that are envisioned on the immediate time horizon.

**RESPONSE**

a. & b. Yes, certainly some Smart Grid technologies and enabling technologies, such as SCADA, are known and proven. The Smart Grid technologies continue to evolve, and the development details are documented in the Joint Case Participant Response to Case No. 2008-00408 that was filed with the Commission on March 25, 2011.

**WITNESS:** Lila P Munsey

**Kentucky Power Company**

**REQUEST**

In light of recent catastrophic storms over the past ten years (for example, the various ice storms, tornadoes, and strong winds), which electric companies have experienced, and for which the company may ultimately have sought regulatory assets, can the company affirmatively state that its basic infrastructure, including all of its generation, transmission and distribution facilities, have proven to be reliable 24 hours a day, seven days a week, 365 days a week? If not, for each and every storm that it affected the utility in excess of two days, please provide the following:

- a. The number of days before the company's last ratepayer's electricity was restored for each storm.
- b. The average number of days, or hours if applicable, that the average ratepayer's outage lasted for each storm.
- c. The average financial loss for the average ratepayer for each storm, if known.

**RESPONSE**

The Company's basic infrastructure is reliable. However, that does not mean that any customer should expect uninterruptible service, nor should they after completion of smart grid.

- a. A list of storms with significant restoration efforts exceeding two days is shown in Attachment 1 to this response. Column 3a in that file shows the start-to-finish duration (in days) of each storm event. This duration represents the number of days between the time of the first customer interrupted and the last customer restored.
- b. CAIDI (customer average interruption duration index) is an industry recognized metric that represents average outage duration. This index (in hours) for each of the identified storms is shown in column 3b of Attachment 1 to this response.
- c. The average financial loss for the average ratepayer for each storm is not known.

**WITNESS:** Lila P Munsey

## KyPCo Major Events (lasting two days)

Start Time	Description	Regulatory Exclusion?	3.a. Start/Finish Duration (days)	3.b. CAIDI (hrs)
2/15/2003 23:59	President's Day Storm: Heavy Snow, Ice, Flooding		13.7	24.9
5/11/2003 6:00	High Winds	No	2.6	5.1
6/17/2003 6:00	Heavy rains and flooding		2.3	13.5
7/9/2003 11:00	Heavy rains and high winds		4.6	7.8
5/26/2004 17:00	Thunderstorms/heavy rain/high winds		10.1	16.2
9/16/2004 21:00	Hurricane Ivan		3.7	8.0
4/7/2006 16:00	Wind & T-Storms		2.2	10.4
12/11/2006 7:00	Wind	No	2.4	5.0
8/16/2007 17:45	Lightning-Wind Storm		3.8	9.6
1/27/2009 7:00	Ice/Snow		8.5	38.5
2/11/2009 7:30	Wind/Ice/Snow		5.6	20.9
5/8/2009 8:00	Wind/Thunderstorm		4.5	13.0
6/16/2009 18:00	Wind/Thunderstorm	No	4.1	6.1
7/25/2009 16:00	Wind/Thunderstorm	No	3.5	5.2
12/9/2009 7:30	Wind		2.5	7.4
12/18/2009 16:30	Snow Storm		12.9	62.3
6/21/2010 15:00	Wind/Thunderstorms		2.6	6.0
8/4/2010 16:00	Wind/Thunderstorms		3.2	7.9
4/4/2011 17:00	Wind/Lightning		2.9	8.8
5/10/2011 17:00	Wind/Lightning		3.9	14.2
7/11/2011 17:15	Wind/Lightning		2.9	7.6
2/19/2012 11:30	Snow		5.3	25.5
3/2/2012 18:00	Tornado		5.8	28.1
6/29/2012 14:00	Very High Winds / Derecho		11.3	29.2
10/30/2012 0:30	Tropical Storm Sandy Wet Snow		3.8	8.4

**Kentucky Power Company**

**REQUEST**

Does the company agree with the Attorney General that electricity is not considered a luxury service but a necessary commodity of modern life? If not, why not?

**RESPONSE**

Some may argue that electricity may not be necessary, but the Company can agree that electricity provides comfort and convenience in a modern life.

**WITNESS:** Lila P Munsey



**Kentucky Power Company**

**REQUEST**

Does the company agree that the fundamental reliability of its electric grid - i.e., the delivery of electricity to the end-user 24/7/365 - is paramount to the end-user's ability to monitor and/ or conserve his/her demand or electricity consumption? If not, why not?

**RESPONSE**

While the Company strives to maintain the reliability of its electric grid, reliability is not a relevant factor in the conservation of electricity. The ability to monitor electricity usage is readily available to the customer, and is as simple as reading the meter. The ability to conserve electricity is more contingent on the customer's active participation in purchasing energy efficient appliances or making lifestyle changes to reduce the consumption of electricity.

**WITNESS:** Lila P Munsey

**Kentucky Power Company**

**REQUEST**

Please state whether the company is aware of any cyber security breaches effecting the electric and gas industries that have either occurred in the United States or internationally. If the answer is in the affirmative, please explain the details of the breaches without exposing information that is not already in the public domain.

**RESPONSE**

The Company is aware of the continuing instances of attempted cyber malicious activity against U.S. critical infrastructure. To date, any such attacks have not had a major impact to grid reliability. Internationally, there have been cyber attacks against other countries with varying levels of impact. It is important to note there have been no widespread outages, either domestically or abroad.

**WITNESS:** Lila P Munsey

## Kentucky Power Company

### REQUEST

Please confirm that the company is aware that the prior United States Secretary of Defense Leon Panetta, in speaking on the vulnerability of the nation's electric grid with the consequential safety and security concerns that ensue, warned the Senate Appropriations Committee on Defense that the risk to the United States could even be considered the equivalent of a "digital Pearl Harbor."<sup>1</sup>

- a. Is this concern of the vulnerability of the nation's electric grid shared by the company? If not, why not?

### RESPONSE

The Company is aware of the comments made by the prior United States Secretary of Defense Leon Panetta. The Company does share concerns regarding the security of the nation's electric grid and understands there are risks, and those concerns and risks are constantly being evaluated. It is important to understand that the electric utility communication infrastructure is continuously evolving, and the attacks and threats are continuously evolving. AEP has a dedicated team of professionals that monitor and manage the communication infrastructure to protect it and keep it safe.

**WITNESS:** Lila P Munsey

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<sup>1</sup> Comments by Secretary of Defense, Leon Panetta, U.S. Senate Appropriations Subcommittee on Defense, Hearing on FY 13 DoD Budget, June 13, 2012.  
<http://www.appropriations.senate.gov/webcasts.cfm?method=webcasts.view&id=08e51d6c-4a32-4fa4-b09c-a006fa63c976>

**Kentucky Power Company**

**REQUEST**

With regard to cyber security in general, can the company unequivocally confirm that its system reliability is not vulnerable to a cyber-security attack? If not, what could be the consequences? Please explain in detail as much as possible for the following:

- a. the company, and
- b. the company's ratepayers.

**RESPONSE**

Control system technology has advanced significantly in the past few years with increasing reliance on Internet connectivity and the benefits it provides in efficiency and lower cost. With these benefits, however, come equally significant potential threats to sustained reliability of this company and the nation's overall critical infrastructure. The threat takes a number of forms from malicious code, to hackers, Advanced Persistent Threats (APT), potential extremist activity and even nation state intrusion attempts into Internet-facing computing resources. While AEP has put an industry-leading cyber security and risk management program in place, including achieving compliance with NERC Reliability and CIP standards, the fact remains that no company can state that it is 100% secure. AEP is well positioned, however, to recognize potential threats through in-house monitoring and threat information sharing with private sector and government resources through its Cyber Security Operations Center, and has developed highly effective preventive and response processes to minimize the impact of any intrusion or disruption attempts against its control networks and systems.

- a. & b. Impact to the Company and ratepayers is dependent upon the extent of disruption exacted on the control systems and resources supplying their power. In many instances, the fact that we are part of a vast, interconnected grid means that even the loss of some transmission or distribution assets can be compensated by rerouting power from other connected resources within the system.

**WITNESS:** Lila P Munsey

**Kentucky Power Company**

**REQUEST**

Please provide the names of the standards, protocols or policies which the company observes and/or implements in its maintaining its system reliability from cyber security threats.

**RESPONSE**

AEP has developed and implemented an Enterprise Security Management Program, which includes Information Security Policies, Standards, Guidelines, and procedures that provide explicit guidance on how systems are to be configured and managed to ensure the confidentiality, integrity, and availability on AEP's information assets as well as protection of consumer information.

**WITNESS:** Lila P Munsey

**Kentucky Power Company**

**REQUEST**

Please provide copies of the standards, protocols or policies which the company observes and/or implements in its maintaining its system reliability from cyber security threats.

**RESPONSE**

AEP, and its subsidiary companies, are in compliance with the North American Electric Reliability Corporation (NERC) Critical Infrastructure Protection (CIP) cyber security standards. The NERC CIP standards are available for viewing/download on the NERC site <http://NERC.COM>. However, AEP does not subscribe to a specific protocol, but uses best practices from multiple comprehensive standards, protocols, or policies for protecting its system reliability and private customer data from cyber security threats. These threats are constantly evolving and AEP adopts and employs best practices to address potential threats. In so doing, AEP consults a number of different standards, protocols or policies including, but not limited to National Institute of Standards and Technology (NIST), American National Standards Institute (ANSI), NERC CIP, SysAdmin, Audit, Network, Security (SANS), Information Technology Infrastructure Library (ITIL), Control Objectives for Information and related Technology (COBIT), and Committee of Sponsoring Organizations of the Treadway Commission (COSO).

**WITNESS:** Lila P Munsey

**Kentucky Power Company**

**REQUEST**

With regard to cyber security in general, can the company unequivocally confirm that its ratepayers' privacy of data cannot be compromised or otherwise divulged to any individual or entity not associated with the company, or a qualified third-party which has issues a non-disclosure statement or the ratepayers? If not, what could be the consequences? Please explain in detail as much as possible for the following:

- a. the company, and
- b. the company's ratepayers.

**RESPONSE**

a & b. AEP takes many precautions to ensure the security and privacy of customer personally identifiable information (PII). Similar to the answer to question 8, there is no way to guarantee that all of that information is 100% secure. The consequences of an unauthorized disclosure of PII for the company vary by state, most notably in breach notification procedures to individuals whose PII was disclosed. In addition, proper use, storage and handling of PII are subject to provisions of company security standards and policy as well as the state-enacted privacy laws. Once the information is provided to a customer-authorized third party or a party that has signed a nondisclosure agreement, the Company cannot be responsible for their actions.

**WITNESS:** Lila P Munsey

**Kentucky Power Company**

**REQUEST**

If a qualified third-party that has agreed to a non-disclosure statement and obtains ratepayers' private information, what guarantees exist that the information will not be disclosed, whether intentionally or unintentionally?

**RESPONSE**

Please see the Company's response to AG 1-11.

**WITNESS:** Lila P Munsey



**Kentucky Power Company**

**REQUEST**

Please provide the names of the standards, protocols or policies which the company observes and/or implements in its maintaining its ratepayers' privacy data from cyber security threats.

**RESPONSE**

Please see the Company's response to AG 1-9.

**WITNESS:** Lila P Munsey

**Kentucky Power Company**

**REQUEST**

Please provide copies of the standards, protocols or policies which the company observes and/or implements in its maintaining its ratepayers' privacy data from cyber security threats.

**RESPONSE**

Please see the Company's response to AG 1-10.

**WITNESS:** Lila P Munsey

**Kentucky Power Company**

**REQUEST**

Given the vulnerability of the electric grid to cyber-attacks, describe what analog (non-digital) means the company will have in place to insure reliability, including but not limited to the maintenance of legacy systems.

**RESPONSE**

Please see the Company's response to AG 1-7. As previously stated, the risks are evaluated and managed. An analog or non-digital solution may not necessarily be a viable option.

**WITNESS:** Lila P Munsey

**Kentucky Power Company**

**REQUEST**

What are the company's estimated costs to invest in order to fully implement Smart Grid?

- a. Do any cost estimates include results of any modeling that may show the degree of exposure to the following risks: (a) hacking; (b) electronic magnetic pulses (EMPs, whether related to solar flares or otherwise); and/or (c) weather events? If so, provide a list of the modeling software used to produce any estimates, the scenarios and sensitivities examined, and any and all such results.

**RESPONSE**

The Company is not proposing to fully implement Smart Grid and has not developed an estimate.

**WITNESS:** Lila P Munsey

**Kentucky Power Company**

**REQUEST**

Please explain in detail what benefits, if any, the company expects its ratepayers to realize because of Smart Grid?

- a. Does the company believe that societal benefits are to be considered in evaluating benefits? If so, detail those societal benefits and how they may be used in evaluations? If not, why not?

**RESPONSE**

The expected customer benefits are discussed beginning on page 7 and 13 of the direct testimony of Company witness Munsey.

**WITNESS:** Lila P Munsey

**Kentucky Power Company**

**REQUEST**

Would the company agree to strict limits and/or caps on ratepayer costs? If not, why not?

**RESPONSE**

The Company would expect a fair return on Smart Grid investments, which are no different from other capital investments.

**WITNESS:** Lila P Munsey

**Kentucky Power Company**

**REQUEST**

Would the company agree to allow ratepayers to opt-out of smart meter deployment? If not, why not?

**RESPONSE**

This issue is discussed on page 12 of the direct testimony of Company witness Munsey.

**WITNESS:** Lila P Munsey

**Kentucky Power Company**

**REQUEST**

Can the company quantify measurable and significant benefits that the ratepayers will realize, including a monetary quantification of net savings (if any) to ratepayers?

**RESPONSE**

The Company assumes the question is suggesting full implementation of Smart Grid technologies. As indicated in the Company's response to AG 1-16, the Company is not proposing to fully implement Smart Grid and has not developed an estimate. Without a specific work plan and estimate, it is not possible to quantify benefits or net savings.

**WITNESS:** Lila P Munsey



**Kentucky Power Company**

**REQUEST**

Please explain in detail what detriments, if any, the company expects its ratepayers to realize because of Smart Grid? Include in the explanation both new costs as well as stranded costs.

**RESPONSE**

The Company knows of no detriments to the ratepayers due to the Smart Grid initiatives the Company has undertaken. As explained in the Direct Testimony of Company witness Munsey, the Company is focusing on three Smart Grid initiatives: Distribution Automation (DA), Volt/VAR Optimization (VVO) and Supervisory Control and Data Acquisition (SCADA). The total loaded capital cost estimate for the installations currently underway is approximately \$11,000,000. Presently the Company has not finalized any plans for future installations of VVO, DA or SCADA.

**WITNESS:** Lila P Munsey

**Kentucky Power Company**

**REQUEST**

What are the company's estimated costs which the company expects the ratepayers to realize?

**RESPONSE**

Please see the Company's response to AG 1-16 and 1-21.

**WITNESS:** Lila P Munsey

**Kentucky Power Company**

**REQUEST**

What are the company's estimated costs which the company expects its shareholders, if any, to realize? Include in the explanation both new costs as well as stranded costs.

**RESPONSE**

Please see the Company's response to AG 1-16 and 1-18.

**WITNESS:** Lila P Munsey

**Kentucky Power Company**

**REQUEST**

Does the company agree that its costs to invest and implement Smart Grid will be different than other utility companies? If not, why not?

**RESPONSE**

Please see the Company's response to AG 1-16 and 1-21. Additionally, the Company does not know the investments of other utilities.

**WITNESS:** Lila P Munsey

**Kentucky Power Company**

**REQUEST**

Does the company agree that its ratepayers' benefits, whether financial or otherwise, may differ from one utility to another upon implementation of any Smart Grid technology? If not, why not?

**RESPONSE**

Customer benefits may differ from one utility to another based upon implementation of any Smart Grid technology since the Smart Grid deployment will be customized to meet the specific needs and characteristics of each utility.

**WITNESS:** Lila P Munsey

**Kentucky Power Company**

**REQUEST**

Can the company guarantee that the deployment of Smart Grid will not interfere with the regulatory compact whereby the ratepayers will receive safe, adequate, and reliable service at fair, just and reasonable costs? If not, why not? Explain in detail.

**RESPONSE**

These concerns will be addressed by the Commission. The Commission will ensure and the Company will provide ratepayers with safe, adequate, and reliable service at fair, just and reasonable costs.

**WITNESS:** Lila P Munsey

**Kentucky Power Company**

**REQUEST**

Answer the above question with the definition of “fair, just and reasonable costs” as being economically feasible for the end-user.

- a. Provide any cost-benefit analysis that the company has run or will run to make the determination of economically feasible to the end-user.

**RESPONSE**

Please see the Company's response to AG 1-16 and 1-26. The Company has not performed any such cost-benefit analysis at this time.

**WITNESS:** Lila P Munsey

**Kentucky Power Company**

**REQUEST**

Regarding time of use (TOU) rates, can the company confirm that low-income ratepayers will not be disproportionately affected more than non-low-income customers? If not, why not? (Provide in the answers in any studies, reports, analyses and relevant data.)

**RESPONSE**

Yes. The Company can confirm that low-income ratepayers are currently not disproportionately affected more than non-low-income customers, because all of KPCo's residential TOU tariffs and provisions are optional offerings and must be requested by the customer. Further, under those tariffs the cost of the TOU meter is included in the tariff price.

**WITNESS:** David M Roush



**Kentucky Power Company**

**REQUEST**

With regard to TOU rates, does the company have any history with any such programs?  
If so, explain in detail with particular facts as to:

- a. the number of customers who participated;
- b. whether they remained on the program;
- c. whether they saved money on their bills; and
- d. whether the customers ultimately reduced their usage.

**RESPONSE**

Please see the direct testimony of Company witness David M. Roush at page 6.

- a. As of November 2012, 370 residential, 210 commercial and 22 industrial customers had elected to take service under one of the Company's time-based pricing or load management provisions.
- b. The Company has not analyzed how long individual customers have remained on TOU tariffs or provisions. Anecdotally, there are customers that have been on TOU tariffs for several years.
- c. The Company has not prepared a specific analysis of whether participating customers have saved money on their bills, but given that the Company's residential and commercial TOU tariffs and provisions are optional offerings it is likely that some customers have saved money under these tariffs or provisions.
- d. The Company has no specific analysis of whether customers have ultimately reduced their usage.

**WITNESS:** David M Roush

**Kentucky Power Company**

**REQUEST**

What proposals will the company present to deal with technological impediments to the broad use of Smart Grid, including but not limited to the following:

- a. low and fixed-income individuals who do not have Internet resources at their home;
- b. multiple forms of telecommunications technology used to access information (i.e., analog cellular, VOIP); and
- c. multiple and proprietary technology and software options in the market that may lead to issues of compatibility?

**RESPONSE**

- a. The current Smart Grid technologies being deployed do not require the customer to have Internet service.
- b. These telecommunications technologies are not required by the customer.
- c. These proprietary technologies and software options are not required by the customer.

**WITNESS:** Lila P Munsey

**Kentucky Power Company**

**REQUEST**

Assume: Full deployment of Smart Grid at the residential ratepayer level consisting of a household with only Energy Star appliances, an HVAC system with at least a 15 SEERS rating, etc. and any smart grid apparatuses/equipment for interconnectivity with the electricity provider (including generation, transmission and distribution).

- a. Does the company agree that if full deployment of the magnitude described in the above question occurs, the average residential ratepayer could experience a significant capital outlay?
- b. If so, what are the projected costs?
- c. If no costs are anticipated by the electric provider, why not?

**RESPONSE**

- a. The Smart Grid technologies being implemented by the Company do not require customers to purchase new appliances. For the scenario described, it is conceivable that the average residential ratepayer, to the extent that their appliances and HVAC system do not currently meet the standards described, could experience a capital outlay if they wish to take full advantage of the smart grid features. However, the Company is not planning a full deployment of Smart Grid and is only selectively implementing cost-effective technologies that have benefits for ratepayers. See the direct testimony of Company witness Munsey on pages 5 through 8.
- b. As explained in the Company's response to AG 1-21, while future installations of DA and SCADA are proposed, cost estimates are not available at this time.
- c. Not applicable.

**WITNESS:** Lila P Munsey

**Kentucky Power Company**

**REQUEST**

In regard to appliances, such as refrigerators or lighting, does the company agree that in the long run, it is cheaper for the end-user himself/herself to make that capital outlay for the purchase of the appliance or lighting than have the company provide the appliance(s) and build the costs into the company's rate base which would then include a profit component for the company on an-going basis?

**RESPONSE**

The Company neither agrees nor disagrees with the question as asked. First, the cost of the appliance, if part of an energy efficiency program, does not become part of the "ratebase" where a (an "ongoing") return on capital ("profit") is earned by the utility. Energy Efficiency expenses are recovered contemporaneously. To the extent that the appliance saves future costs, and the program being offered is cost effective, the utility shares in that savings in the form of a "shared benefit." Also, the question depends upon perspective. For the end-user, it is certainly cheaper for them if the utility offers an incentive than if they made that entire "capital outlay" themselves. Last, if the same level of efficiency could be achieved in the absence of utility programs (i.e., the end-users make the investments themselves), then that would be the cheapest option. However, the purpose of such programs is precisely to get more people to make efficiency investments than would have in the absence of a program.

**WITNESS:** Lila P Munsey

**Kentucky Power Company**

**REQUEST**

Confirm that the Smart Grid depends, at least in part, if not exclusively, on telephony (whether landline, fiber optic, wireless or VOIP) at the end-user level for the end-user to participate in his/her altering his/her electricity usage patterns or behavior.

**RESPONSE**

The current Smart Grid technologies being deployed by the Company do not require the customer to have a landline, fiber optic, wireless or VOIP.

**WITNESS:** Lila P Munsey

**Kentucky Power Company**

**REQUEST**

If the answer to the above question is in the affirmative, confirm that limited access or even complete absence of access to telephony will interfere with, if not prevent, the deployment of the Smart Grid at the end-user level.

**RESPONSE**

Not applicable.

**WITNESS:** Lila P Munsey

**Kentucky Power Company**

**REQUEST**

If the company intends to install infrastructure / software allowing for the transmission of Smart Grid / Smart Meter data over its distribution / transmission conductors and networks, provide estimates, or actual numbers, for the costs of doing so.

**RESPONSE**

The Company has not prepared cost estimates to install infrastructure / software allowing for the transmission of Smart Grid / Smart Meter data over its distribution / transmission conductors and networks.

**WITNESS:** Lila P Munsey

**Kentucky Power Company**

**REQUEST**

Is there a standard communications' protocol that the company will deploy in its Smart Grid that will be interoperable regardless of the communications provider?

- a. If not, explain how the company plans on addressing any problems that might arise.

**RESPONSE**

Distribution Smart Grid equipment and SCADA systems currently use the DNP3 protocol which is interoperable across communication providers.

**WITNESS:** Lila P Munsey



**Kentucky Power Company**

**REQUEST**

If improved reliability is the goal of Smart Grid / Smart Meter, would it not be more cost-effective to invest in infrastructure hardening (for example, utilizing protocols and standards developed and implemented by many utilities in hurricane-prone regions)?

**RESPONSE**

An optimal strategy for reliability would likely include Smart Grid technologies and infrastructure hardening. The direct testimony of Company witness Munsey discusses the need for storm hardening smart grid communications at page 14.

**WITNESS:** Lila P Munsey

**Kentucky Power Company**

**REQUEST**

Describe the company's plans to avoid obsolescence of Smart Grid / Smart Meter infrastructure (both hardware and software) and any resulting stranded costs. (This question and the subparts should be construed to relate to both the Smart Grid Investment Standard as well as the Smart Grid Information Standard.)

- a. Describe who would pay for stranded costs resulting from obsolescence.
- b. With regard to the recovery of any obsolete investment, explain the financial accounting that should be used (as in account entry, consideration of depreciation, time period involved, etc.).

**RESPONSE**

- a. Stranded costs resulting from obsolescence is an issue the Commission will consider, and the Commission will determine who would pay for any stranded costs resulting from obsolescence.
- b. The recovery of any obsolete investment is an issue the Commission will consider, and the Commission will determine the appropriate financial accounting tools and methods for recovery.

**WITNESS:** Lila P Munsey

**Kentucky Power Company**

**REQUEST**

With regard to interoperability standards, does the company agree that Smart Grid equipment and technologies as they currently exist, and are certain to evolve in the future, are not a one size fits all approach to the Commonwealth?

**RESPONSE**

The issue of interoperability standards was discussed on page 14 in the direct testimony of Company witness Munsey.

**WITNESS:** Lila P Munsey

**Kentucky Power Company**

**REQUEST**

Is dynamic pricing strictly defined as TOU?

- a. If not, explain why not.
- b. Is the company requesting that dynamic pricing be voluntary or involuntary, if at all?

**RESPONSE**

This subject is discussed on pages 8 and 12 in the direct testimony of Company witness Munsey and on pages 4, 7 and 8 in the direct testimony of Company witness Roush. The Company is not proposing further dynamic pricing options in this proceeding.

**WITNESS:** David M Roush

**Kentucky Power Company**

**REQUEST**

Please explain in detail whether the company has any dynamic programs in place in Kentucky.

- a. For each program, provide the number of participants.
- b. For each program, state whether those participants on aggregate have saved costs on their bills.
- c. For each program, state whether those participants on aggregate have saved costs on their bills,
- d. For each program, state whether each participant has saved costs on his/her/its bills.  
(The question is not intended to request any private identifier information.)

**RESPONSE**

- a. through d.

The Company had an experimental Real-Time Pricing tariff (Tariff RTP) under which customers could designate a portion of their load to be served under real-time hourly prices. Tariff RTP offered customers the opportunity to manage their electric costs by shifting load from higher cost to lower cost pricing periods or by adding load during lower price periods. Currently, no customers are taking service under Tariff RTP pursuant to the Commission's Order in Case No. 2012-00226 dated December 20, 2012. For further information regarding Tariff RTP, see Case No. 2012-00226.

**WITNESS:** David M Roush

**Kentucky Power Company**

**REQUEST**

Does the company recommend the Commission to formally adopt the EISA 2007 Smart Grid Investment Standard? If not, why not?

**RESPONSE**

No. It is the Company's position that it is not necessary for the Commission to formally adopt the EISA 2007 Smart Grid Investment Standard. Please see the direct testimony of Company witness Munsey at page 9.

**WITNESS:** Lila P Munsey

**Kentucky Power Company**

**REQUEST**

Does the company recommend the Commission to formally adopt the EISA 2007 Smart Grid Information Standard? If not, why not?

**RESPONSE**

No. It is the Company's position that it is not necessary for the Commission to formally adopt the EISA 2007 Information Standard. Please see the direct testimony of Company witness Munsey at pages 10 and 11.

**WITNESS:** Lila P Munsey

**Kentucky Power Company**

**REQUEST**

Does the company recommend issuing an IRP Standard?

- a. If so, what concerns does the company have with a standard, including "priority resource," especially as it relates to cost-effectiveness?
- b. What concerns would the company have with a standard as it affects CPCN and rate applications?

**RESPONSE**

In Case No. 2008-00408, in an order dated July 24, 2012, and amended in an order dated August 6, 2012, the Commission required all jurisdictional electric utilities to adopt the Kentucky IRP Standard. On August 22, 2012, the Company filed a Certification of Adoption of Revised IRP Standard. The Company will comply with the revised Kentucky IRP Standard as defined in the Commission's IRP regulation (807 KAR 5:058).

- a. The Company does not have a concern with the revised Kentucky IRP Standard. Per the July 24, 2012 order in Case No. 2008-00408, the revised Kentucky IRP Standard reads, in part:

Each electric utility shall integrate energy efficiency resources into its plans and shall adopt policies establishing cost-effective energy efficiency resources with equal priority as other resource options.

In each integrated resource plan, certificate case, and rate case, the subject electric utility shall fully explain its consideration of cost-effective energy efficiency resources as defined in the Commission's IRP regulation (807 KAR 5:058).

See the July 24, 2012 order in Case No. 2008-00408 for a discussion of the Commission's consideration of Movants arguments<sup>1</sup>.

- b. The Company does not have a concern with the revised Kentucky IRP Standard.

**WITNESS:** Lila P Munsey

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<sup>1</sup> Joint Motion for Clarification and Amendment of Order (filed October 28, 2011).



**Kentucky Power Company**

**REQUEST**

Does the company agree that any investment in grid modernization infrastructure should be done before deploying TOU rates or dynamic pricing? If not, why not?

**RESPONSE**

No. As explained by Company witness Munsey at page 8 of her direct testimony in this proceeding, KPCo's existing AMR meters will support TOU rates. Please see the direct testimony of Company witness Roush at page 7 for a discussion of why dynamic pricing may be appropriate only for larger customers.

**WITNESS:** Lila P Munsey

**Kentucky Power Company**

**REQUEST**

Regarding the Kentucky Smart Grid Roadmap Initiative (KSGRI), does the company believe that it provides the fundamental basis for the Commonwealth as a whole to proceed with Smart Grid given its lack of incorporating all electric utilities such as municipalities and the TVA, along with its distribution companies? If yes, please explain why. If not, please explain why not.

**RESPONSE**

The Company believes that the KSGRI provides, in general, a fundamental basis for a utility to consider the implementation of Smart Grid technologies. As pointed out by Company witness Munsey at page 11 of her direct testimony, there is no single solution for all utilities and each must develop solutions unique to their needs and expectations of their customers.

**WITNESS:** Lila P Munsey

**Kentucky Power Company**

**REQUEST**

Does the company believe that the Commonwealth's electric industry is, or will become, so interconnected that all electric entities in any way involved or associated with the generation, transmission and / or distribution of electricity should be included and participate to some degree with Smart Grid if it is to come to fruition? If yes, please explain why. If not, please explain why not.

**RESPONSE**

No. The independent implementation of Smart Grid by each utility is discussed on page 11 in the direct testimony of Company witness Munsey.

**WITNESS:** Lila P Munsey

**Kentucky Power Company**

**REQUEST**

Does the company believe that any Smart Grid Investment will trigger a CPCN case? If not, why not?

**RESPONSE**

No. The requirements for Smart Grid investment will be reviewed by the Commission, and the Commission will decide on the required process for Smart Grid investment.

**WITNESS:** Lila P Munsey

**Kentucky Power Company**

**REQUEST**

Does the company believe that Dynamic Pricing should be economically feasible for the end-user and be supported by a cost- benefit analysis?

**RESPONSE**

Please see the direct testimony of Company witness Roush at page 7 and the Company's response to AG 1-45.

**WITNESS:** David M Roush

**Kentucky Power Company**

**REQUEST**

If additional education is contemplated with the deployment of the Damart Grid, please explain in detail if known or contemplated.

**RESPONSE**

As stated in the Company's response to AG 1-16, KPCo is not planning a full deployment of Smart Grid at the present time. The technologies that the Company is currently deploying, as described in the direct testimony of Company witness Munsey at pages 5 through 8, provide benefits to all of the Company's customers and do not require additional education.

**WITNESS:** Lila P Munsey